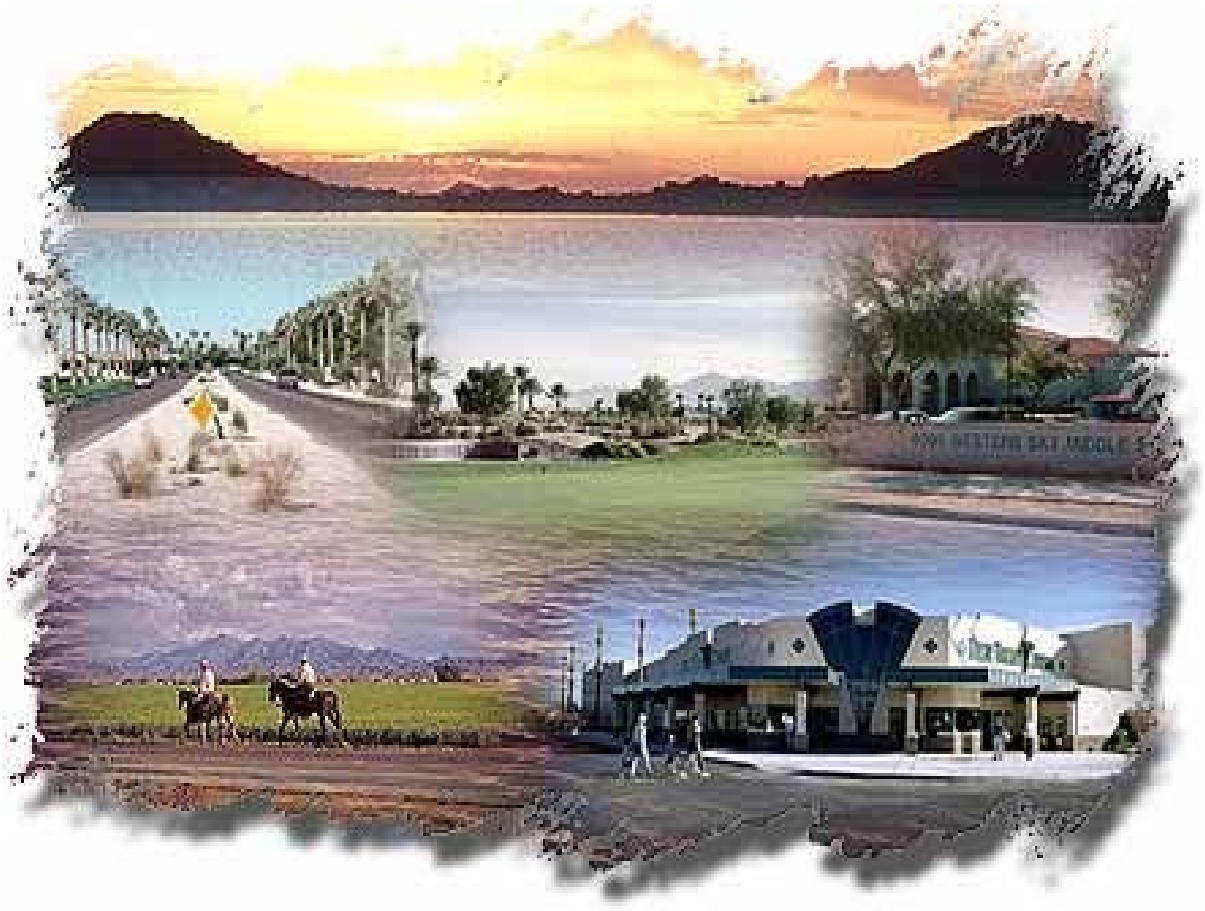


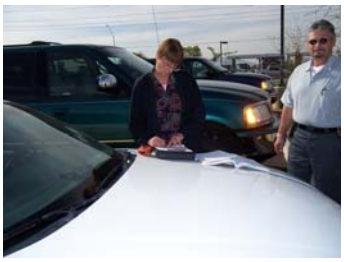
Goodyear Fire Prevention Division
Contractor's Job Site Guide

Table of Contents

Welcome to the City of Goodyear.

This Contractor's Job Site Guide is published and provided by the Fire Prevention Division of the Goodyear Fire Department as a customer service to the construction and design community.

The purpose of this publication is to provide information concerning fire code issues that are frequently asked. Additionally, this guide also provides information regarding what a fire inspector needs to successfully complete an inspection and to assist you in completing your project.



Dial **623-882-7316**
For all
Fire Prevention
Inspections or Questions

Your project will be assigned to an inspector and ideally you should interact with the same inspector throughout the life of the project. However, occasionally your assigned inspector may not be available for a requested inspection. In that case, another qualified inspector will be assigned to conduct the inspection, which should not cause a delay in the completion of your project.

Our goal is to achieve code compliance by partnering and assisting you with the completion of your project within your deadlines. In order to be successful in this endeavor, communication is critical. If you communicate your issues to the inspector, an early solution can generally be worked out that will satisfy everyone.

Introduction

FIRE SAFETY DURING CONSTRUCTION, ALTERATION, OR DEMOLITION OF A BUILDING

Definitions

General Contractor/Superintendent

The general contractor/superintendent is responsible for the fire safety of all property under his/her control and will ultimately be held responsible for any fire code violations that may occur on the job site. The general contractor/superintendent is responsible for maintaining copies of all city permits on site.

Fire Protection Contractor

The fire suppression or detection contractor is responsible for maintaining the approved set of plans on site, scheduling the inspections and coordinating with the general contractor/superintendent to maintain fire protection throughout the job site. In addition, the fire protection contractor is responsible for verifying their system is ready for inspection prior to calling for the inspection.

Adopted Fire Codes & Amendments

The City of Goodyear has adopted the International Fire Codes with local amendments. Please contact the Fire Prevention Division for information on the current edition of the adopted codes and amendments or visit our City web site at www.goodyearaz.gov

General Information

Fire safety during construction, alteration, or demolition of a building is critical for the safety of job employees, fire prevention personnel and general public. The following is a general outline of preconstruction requirements and specific information pertaining to each requirement. A preconstruction meeting is helpful for the Job General Contractor/ Superintendent and Fire Inspector to discuss general or specific requirement issues or provide assistance in fire permits that may be required during the project. This guide also covers the fire requirements for Temporary and Full Certificate of Occupancy.

This guide is not inclusive and a preconstruction meeting is recommended to divert costly changes or requirements pertaining to this project.

General
Definitions and Information

General Requirements

The following are the fire safety requirements from the commencement of the project to full Certificate of Occupancy. All requirements are to be maintained throughout the length of the project.

1. **Construction/ Sales Trailer ***
2. **Fire Hydrants/On Site Water Supply**
3. **Combustible Waste**
4. **Temporary Fire Apparatus Access Roads**
5. **Fire Extinguishers**
6. **Asphalt Kettles**
7. **Heaters**
8. **Hot Work**
9. **Warming Fires**
10. **Storage and Use of Flammable Liquids**
11. **Storage and use of Compressed or Liquefied Gases**
12. **Electrical Generators with Self-contained Fuel Tanks***
13. **Knox Boxes**
14. **Fire Lane Signs**
15. **Fire Protection Inspection and Acceptance Testing**
    - **15-1 Residential Fire Sprinkler Systems**
    - **15-2 Commercial Sprinkler Systems**
    - **15-3 Fire Alarm Systems**
    - **15-4 Kitchen Hood Systems**

General Requirements

16. Tenant Improvement requirements

17. Temporary Certificate of Occupancy

18. Full Certificate of Occupancy

***May require fire permit prior to construction**

Specific Requirements

1. Construction/Sales Trailer*

A building permit is required for a temporary construction/sales trailer from the Community Development Building Safety Division located at City Hall. A fire sprinkler or fire alarm system is not required for temporary construction /sales trailers (not to exceed 90 days). If the construction/sales trailer is equipped with a fire suppression or fire detection system, a permit is required for the systems and a fire inspection is required. Fire Protection system must be maintained while the trailer is on site. If the trailer requires a gas or diesel powered generator with a self-contained fuel tank a fire permit may be required. Please review **Section # 12 Electrical Generators with Self-contained Fuel Tanks** for specific details on fire application/permit prior to placing the generator in service.

2. Fire Hydrants/On Site Water Supply

Prior to bringing combustible building materials onto the site, there shall be approved fire hydrants installed and operating at the access points to the site. **Operating** means being fully tested, chlorinated, and approved by Engineering/ Water Resource Department. If combustible construction materials are stored further than 150 feet from any hydrant, additional hydrants shall be installed so that the 150-foot access limit is maintained.

3. Combustible Waste

Combustible waste shall not be allowed to accumulate on any site except in approved containers. Waste material shall be removed from the building on a daily basis. Combustible debris, waste material, or trash shall not be burned on the site. *IFC 1404.2*

Specific Requirements

4. Temporary fire apparatus access roads

Fire apparatus access roads are required during construction to allow emergency response vehicles onto the site for both fire and medical emergencies. Access roads shall be in place when combustible construction materials are brought onto the site or prior to the start of vertical construction, whichever comes first. In some cases, depending on the circumstances, access roads may be required at an earlier stage of the project. Access roads shall be 20 feet wide with an approved turn-around if longer than 150 feet. Buildings of 3 or more stories require fire access roads 26 feet in width.

IFC 1410.1 and Appendix D, City Engineering Standards

During construction, temporary access roads may be provided as long as they comply with the following:

- The fire apparatus access road shall be an all weather driving surface, graded to drain standing water and engineered to bear the imposed loads (75,000 pounds) of fire apparatus when the roads are wet. The minimum surface shall be six inches of ABC compacted to 90 percent over an approved base. When requested, compaction test results shall be provided to the inspector *prior* to approval. Alternate methods may be approved when designed and sealed by a professional engineer and approved by the fire department.

- All trenches left open for more than 8 hours on a fire apparatus access road shall be plated with steel plates capable of maintaining the integrity of the fire apparatus access road design. *No specific reference in IFC to steel plates but they are an accepted method locally*

- Trenches cut across any fire apparatus access road must be filled in and resurfaced by the end of the working day.

- Access roads must reach to within 150 feet of all points of any building, combustible construction materials, and combustible debris storage areas. *IFC 503.1.1*

- The edges of the access road shall be obvious or clearly marked. *No specific reference in IFC*

- All fire apparatus access roads shall be clearly marked at the entrance with an approved sign approximately three feet by four feet. The lettering shall be red on a white background with letters a minimum of four inches tall using a minimum ¾ inch stroke and shall include the address of the site and shall include the words “Fire Access Road.” If appropriate, the use of arrows may be approved by your inspector. Also, additional access road markings may be required throughout the project. *IFC 503.3*

5. Fire Extinguishers

At least one fire extinguisher (2-A: 20-BC) is required in a building under construction or during alteration or demolition. Additional fire extinguisher shall be placed at each floor level at each stairway, in each storage or construction shed, and where special hazards exist such as flammable/combustible liquid storage. Extinguishers shall be installed in plain view in an accessible location. *IFC 1415.1 and 906.1*

6. Asphalt Kettles

Asphalt kettles shall not be used inside of or on top of any building. One 40BC fire extinguisher is required to be on the roof of the structure being covered, and one 40BC fire extinguisher within 25 feet of the asphalt kettle. There must be an attendant within 100 feet of the kettle while the burner flame is on; also, no ladders or similar obstacles shall form the route to the kettle. The kettle shall be no closer than 20 feet to any building or structure. *IFC 303.5*

7. Heaters

All heaters used in structures must be designed and approved for inside use. Portable heater clearances to combustibles shall be maintain in accordance to manufactured instruction, be protected from damage, and be anchored or have a stable base to prevent overturning. Adequate ventilation must be provided for fuel burning heaters. Heaters must be turned off, moved to a safe distance from any structure, and allowed to cool before fueling. *IFC 1403.1 thru 1403.6*

8. Hot Work

- Any person performing cutting or welding operations, using a torch or other flame-producing device for removing paint, sweating pipe joints, applying roofing materials, or any other process requiring an open flame device in any building or structure shall provide one approved fire extinguisher (2-A:20-BC) or a water hose equipped with a suitable nozzle.
- When using a water hose, it must be of sufficient length to reach all portions of the building or area where hot work is being conducted and must be connected to a water supply on the premises where the hot work operation is being performed.

- Combustible material in the proximity to an open flame shall be protected against ignition by shielding, wetting, or other means.
- **In all cases a fire watch shall be maintained** in the vicinity of the operation **for no less than one-half hour after** the torch or flame-producing device has been used.
- Companies performing welding and hot work operations on the site will provide the superintendent with written safety procedures to be followed by their personnel. *IFC 2604 and 303*

9. Warming Fires

The following rules shall be followed for warming fires at construction sites:

- No warming fires shall be ignited or maintained unless the fire is contained in an **APPROVED** waste burner located safely and at least 25 feet from any structure. An approved waste burner is a 30 or 55-gallon metal drum, intact, with a spark arrester, constructed of iron or heavy wire mesh with openings no larger than 1/2 inch.

- The fire must be attended **AT ALL TIMES** by a competent person who shall have a garden hose attached to an approved water supply or a 2A-10BC fire extinguisher. This means somebody must be specifically assigned to attend the fire. It is **NOT** permissible to leave the fire unattended. The fire must be completely extinguished before leaving it unattended.

- The burning of material shall not cause or create dense smoke or odor. If this occurs the warming fire shall be extinguished.

- All burning shall meet the requirements of the Maricopa County Health Department Division of Air Pollution. You must check daily to see if it is permissible to burn.

- The Fire Marshal may prohibit any and all fires when it is deemed that they are hazardous. *IFC 303.2 and 303.4*

10. Storage and Use of Flammable Liquids

The storage of all flammable liquids shall be in an area approved for flammable liquid storage. The storage of all flammable liquids must be in containers designed for their use. Flammable liquids **shall not** be stored in buildings under construction. All containers used for the storage of flammable liquids must be labeled with the liquid they contain. A fire permit is required for the storage or use of more than 5 gallons of flammable liquids or 25 gallons of combustible liquids inside or more than 10 gallons of flammable liquids or 60 gallons of combustible liquids outside. Check with your inspector. *IFC 1405 and 3404*

11. Storage and Use of Compressed or Liquefied Gases

Cylinders, valves, regulators, hose and other apparatus and fittings for oxygen **shall** be kept free from oil and grease. Oxygen cylinders, apparatus and fitting **shall not** be handled with oily hands, oily gloves or greasy tools or equipment. Acetylene gas **shall not** be piped except using approved cylinder manifolds and connections. Cylinders shall be located away from the hot work area to prevent such cylinders or generators from being heated by radiation from heated materials, sparks or slag, or misdirection of the torch flame.

12. Electrical Generators with Self-contained Fuel Tanks*

Outdoor generators with self-contained fuel tanks using flammable liquids over 10 gallons capacity or combustible liquids with a capacity of 60 gallons or more require a permit from the City of Goodyear Fire Department *prior* to installation. *IFC 105.6.17*

13. Knox Boxes

Knox Boxes are required near the front entry/exit of the building and adjacent to any sprinkler riser and/or fire alarm control panel rooms with outside access only. Additional Knox Boxes, Knox padlocks, Knox key switches, or other Knox devices may also be required for certain structures. *Please contact the Fire Prevention Division for proper applications and additional information.*

- In strip malls and similar structures, a maximum of 4 separate businesses may share a Knox Box in a central location in front and at the rear of the building.

- The applicant shall contact their fire inspector (623-882-7316) regarding the exact location of the box(s). The applicant shall obtain a Knox Company order form from the Goodyear Fire Prevention Division. Instructions are on the form.

- Keys are locked into the Knox box(s) by Fire Prevention personnel. Please call 623-882-7316 to request this service.

- Marking/labeling keys as to use or suite is required.

14. Fire Lane Signs

When fire lane signs are required the location of the signs will be shown on the approved site plans. If fire lane signs are not shown on the approved plans call 623-882-7316 for assistance in locating the signs. The signs shall be in accordance with City of Goodyear Standard Detail G-3142. *IFC 503.3 and appendix D103.6 thru D103.6.2*

15. Fire Protection Inspection & Acceptance Testing

- **All requests for acceptance testing shall be made by contacting the Goodyear Fire Prevention Office (623-882-7316) no less than 48 hours in advance.**

- The most current set of approved plans bearing the red fire department stamp shall remain on job site at all times, a copy of the approved plan will be accepted**. <u>No inspections or tests will be conducted without them.</u>**

- It is expected that systems are pre-tested by the contractor and all corrections made ***prior*** to calling for an acceptance inspection. A re-inspection fee will be assessed for failed inspections.

  - The installer and the job superintendent should assure that the systems are in fact problem free and ready for testing.
  - Inspections and tests will ONLY be scheduled with the installer / sub contractor of the system.
  - Final acceptance tests will be conducted for all building fire protection systems at the same time, Representatives from the sprinkler, alarm, and hood system installers must be on site for final acceptance testing.
  - Missed inspections and re-inspections of systems where failure is due to contractor omissions or errors will require a re-inspection fee accessed at
  - **$120.00 dollars per hour with a 3 hour minimum charge**.

15-1. Residential Fire Sprinkler Systems

- An approved plan, stamped and signed by the Goodyear Fire Prevention Division, must be on-site at all times. **Inspections will not be conducted without the approved plan on site.**
- 2 inspections will be conducted on the system:

A 200 psi rough inspection will be conducted when the piping and riser are in place. A pressure of 200 psi or more must be maintained for 2 hours, if the gauge shows less than 200 psi, the test is a failure. Heads should be installed and should be covered by protective caps. The system need not be connected to a water supply at this point and may be filled from an outside source for testing. **<u>ALL PIPING MUST BE VISIBLE.</u>**

1. A final acceptance test will consist of an Inspectors Test and a final overhead and riser inspection. The system should be 100% completed and pre-tested prior to any requests for inspection. Electrical power must come from the grid through a meter connected to the home electrical system. **NO TESTS WILL BE CONDUCTED USING GENERATOR POWER.**
2. The system must be connected to a permanent water supply for final inspections.
3. The Inspector Test Valve shall be identified with signage.
4. A sprinkler head box with at least 2 sprinkler heads shall be installed near the sprinkler riser.
5. A calc plate shall be filled out and installed near the sprinkler riser.

Missed Tests and Failures due to installer / contractor error will be subject to a re-inspection fee of $120.00 per hour with a 3 hour minimum.

ALWAYS PRE-TEST THE SYSTEM PRIOR TO SCHEDULING A FINAL.

15-2. Commercial Sprinkler Systems

- A minimum of two separate inspections are required prior to Fire Department approval of the sprinkler system. New sprinkler systems require a pressure test and a final acceptance test. Documented proof of an underground flush of the sprinkler supply line **MUST** be furnished prior to connection of the sprinkler riser.

- **Note: Wall mounted Fire Department Connections will be approved**
  Overhead Hydrostatic Two-Hour Pressure Test and Rough-in Inspection

➢ Systems shall be pre-tested by the contractor / installer.

➢ Tested at 200 psi for two hours. Superintendent or other supervisor to witness pump-up.

➢ A 24 hour, 175 psi test may be approved in certain circumstances.

➢ All system piping must be visible from floor level. ***NO*** *sheet rock or ceiling tile can be installed prior to the testing or inspection of the piping system without the approval of your fire inspector. You will be required to remove any obstructions to viewing the complete piping system before an inspection will be conducted.*

- Fire sprinkler system rough-in inspection includes all overhead piping, overhead upright sprinkler heads and down piping (penchant sprinkler heads if possible) is required to be installed.

The Final Acceptance Test Includes:

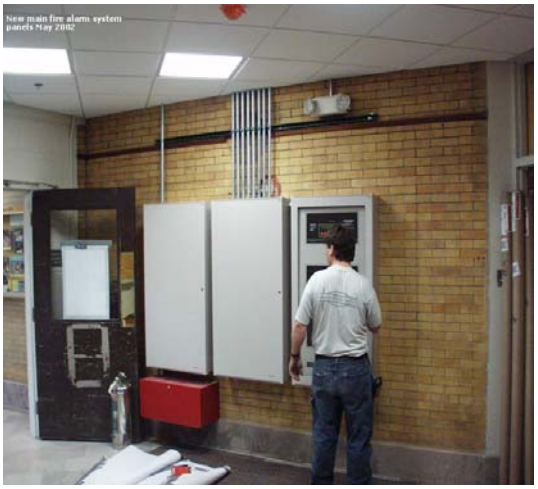
- Visual inspection of the entire system (drywall and ceiling panels shall be in place).
- Exterior bell tests, and third party monitoring for all NFPA 13 and 13R systems.
- A hydraulic calculation data plate (NFPA 13) must be installed on all calculated systems. The use of magic markers, embossed tape labels, or metal impression labels is NOT allowed. **Stamped or engraved metal plates are required.**
- A sprinkler head box shall be properly installed, and be stocked with six (6) sprinkler heads, wrench, and an NFPA 25 booklet.
- Tamper switches or chain and lock for all NFPA 13 and 13R system valves.
- System shall be fully tested on:
  - All signage shall be installed on all sprinkler riser rooms, FACP rooms.
  - Two-inch main drain test.
  - Inspectors test and time water flow alarm
  - Other tests or inspections that may be required

Dial **623-882-7316**

For all
Fire Prevention
Inspections or Questions

ALL FINAL TESTING MUST BE CONDUCTED ON GRID POWER, NOT GENERATOR POWER. TEMPORARY POWER SUPPLIED FROM THE GRID, THROUGH A METER IS ACCEPTABLE.

15-3. Fire Alarm Systems



- All fire alarm systems shall be installed in accordance with the International Fire Code and #NFPA 72.
- All tests shall be requested by the installer/sub-contractor actually doing the work, and will be coordinated to be conducted at the same time as the sprinkler acceptance test and hood system test if applicable**.**
- The entire system shall be fully installed, operational and pre-tested prior to system acceptance testing by the Fire Department.
- All control panels, initiating, notification, and signaling devices, power supplies and auxiliary devices shall be tested in the presence of the inspector.
- All devices to be tested shall be tested in accordance with manufacturers' recommendations. It shall be the responsibility of the installer to provide the equipment and supplies necessary to conduct the test. All duct smoke or heat detectors shall initiate an alarm signal.
- An approved simplified floor plan of the areas served by the alarm panel shall be posted near the annunciator panel. Zone descriptions and /or devices shall correspond with the floor plan. **Check with your inspector.**
- A Certificate of Completion (NFPA 72) shall be completed and provided to the Fire Department prior to acceptance.

15-4. Kitchen Hood Systems

Kitchen hood systems shall be installed in accordance with the 2003 International Fire Code and NFPA 17 or 17A.

Testing includes:

- The installing contractor shall perform all tests.
- All actuation components including remote manual pull stations, mechanical or electrical devices, detectors, actuators, and inter-locks shall be tested for proper operation during the inspection in accordance with the manufacturers' listed procedures.

- Gas cooking appliances shall be connected to gas lines prior to testing.
- Electrical power required for acceptance testing of systems can be provided by grid power only.
- Upon activation of the system, the makeup air supply to a hood shall be shut down and hood exhaust fans shall continue to run unless shutdown is required by the extinguishing system or unless another component of the system requires shutdown.
- If the building has a fire alarm system, the hood extinguishing system shall be connected to provide alarm signals to the Fire Alarm Central Panel

16. Tenant Improvement Requirements

- Both Fire Sprinkler and Fire Alarm contractor representatives must be on site for inspection
- Approved Plans on site as well as permit for tenant improvement.
- Inspector will confirm fire sprinkler and fire alarm tenant improvement is in accordance with approved plans. The inspector will also verify that adequate fire sprinkler and fire alarm coverage is provided.
- Fire Sprinkler contractor will flow water using Inspector test valve. Inspector will verify the exterior water bell activation and verify fire alarm notification is operating properly.
- Fire alarm contractor will contact monitoring company to verify signals were received as well as correct address.

17. Temporary Certificate of Occupancy

- All requests for Certificate of Occupancy inspections shall be called in to the Goodyear Fire Prevention Division (623-882-7316) at least **48 hours** prior to the date required.
- **Approved Fire Protection Plans** bearing the Fire Department stamp must be available at the job site at all times from the start of construction through final Certificate of Occupancy inspection. Your fire inspector will give you paperwork for each inspection conducted at your project. Keep this paperwork on the job site. You may be required to provide documentation that an inspection has been completed and it is expected that you will be able to provide the paperwork.

Specific Requirements

In order to obtain Fire Department sign off on the Temporary Certificate of Occupancy, the following minimum conditions must apply:

- Fire suppression systems must be completed and satisfactorily tested and in service.
- Records of Completion and Materials must be supplied to the inspector for all systems except NFPA 13D sprinkler systems.
- Exit signs, emergency lighting must be functional.
- All fire riser rooms and fire alarm control panel rooms shall be identified with signage.
- All fire line backflow devices and wall indicator valves not otherwise secured shall be provided with chains and locks. Post indicator valve handles shall be padlocked to the body of the device.

- Fire extinguishers shall be provided and mounted. The rating of the fire extinguisher shall be in accordance with NFPA 10.
- New landscaping plants shall be no closer than 7 feet to any fire line backflows, fire department connections, fire hydrants, post indicator valves, or other fire line appliances.

18. Full Certificate of Occupancy Requirements

- All fire protection systems shall be completed and satisfactorily tested and in service. These would include alarm systems, hood extinguishing systems, and special extinguishing systems.
- Fire suppression systems shall be completely installed, satisfactorily tested and approved by the Goodyear Fire Department and in proper operating condition.

- Records of NFPA 72 Certificate of Completion and Materials must be supplied to the inspector for all systems at time of final inspection.
- Third party monitoring must be operational.
- Permanent fire access roads paved with curbing, movable bollards or chains and aprons completed and fire lane signs in place.

Specific Requirements

All Post Indicator Valves shall be in service and painted red.

- Post Indicator Valves on stub outs intended for future use and normally left in the closed position will be painted forest green to avoid confusion with Post Indictor Valves currently in service.

- Approved address numbers, shall be visible from the street, mounted on the building or on the roadway monument. For additional information regarding address numbers, please contact the fire department (623-882-7316).

- Knox boxes shall be mounted in approved locations (consult with your inspector). **Construction keys will be provided by the superintendent after mounting for use until permanent locks/keys are installed. Permanent keys will be required for C of O sign-off.**

REMINDER

APPROVED PLANS & PERMITS MUST REMAIN ON JOB SITE DURING CONSTRUCTION & TESTING

Dial **623-882-7316**

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